

Amendments to the Claims

The following listing of claims replaces all prior versions of the claims and all prior listings of the claims in the present application.

1-44. (canceled)

45. (new) A tyre for a vehicle wheel, comprising:

at least one structural element including a crosslinked elastomeric material obtained by crosslinking an elastomeric composition comprising:

at least one diene elastomeric polymer;

at least one reinforcing filler;

from 0.05 phr to 10 phr of zinc oxide;

from 0.1 phr to 20 phr of at least one fatty acid amide; and

from 0.1 phr to 15 phr of at least one zinc salt of a carboxylic acid of formula R-

COOH, wherein R is selected from linear or branched C₁-C₂₄ alkyl groups,

linear or branched C₂-C₂₄ alkenyl groups, C₅-C₂₄ cycloalkyl groups, C₆-

C₂₄ aryl groups, C₇-C₂₄ alkylaryl or arylalkyl groups.

46. (new) The tyre of claim 45, comprising:

a carcass structure;

a belt structure applied in a circumferentially external position relative to the carcass structure;

a tread band superimposed circumferentially on the belt structure; and
a pair of sidewalls applied laterally on opposite sides relative to the carcass structure;
wherein the carcass structure comprises at least one carcass ply,
wherein the at least one carcass ply is shaped in a substantially toroidal configuration,
wherein opposite lateral edges of the carcass structure are associated with respective bead
wires,
wherein each bead wire is enclosed in a respective bead,
wherein the belt structure comprises at least one belt strip, and
wherein the at least one structural element including the crosslinked elastomeric material
is the tread band.

47. (new) The tyre of claim 45, wherein the elastomeric composition comprises from
0.1 phr to 6.0 phr of the zinc oxide.

48. (new) The tyre of claim 45, wherein the elastomeric composition comprises from
0.5 phr to 5.0 phr of the zinc oxide.

49. (new) The tyre of claim 45, wherein the elastomeric composition comprises from
0.5 phr to 10 phr of the at least one fatty acid amide.

50. (new) The tyre of claim 45, wherein the elastomeric composition comprises from
2.0 phr to 6.0 phr of the at least one fatty acid amide.

51. (new) The tyre of claim 45, wherein the elastomeric composition comprises from 0.5 phr to 10 phr of the at least one zinc salt of a carboxylic acid.

52. (new) The tyre of claim 45, wherein the elastomeric composition comprises from 1.0 phr to 5.0 phr of the at least one zinc salt of a carboxylic acid.

53. (new) The tyre of claim 45, wherein the at least one diene elastomeric polymer has a glass transition temperature (T_g) below 20° C.

54. (new) The tyre of claim 45, wherein the at least one diene elastomeric polymer comprises one or more of: cis-1,4-polyisoprene; 3,4-polyisoprene; polybutadiene; optionally halogenated isoprene/isobutene copolymers; 1,3-butadiene/acrylonitrile copolymers; styrene/1,3-butadiene copolymers; styrene/isoprene/1,3-butadiene copolymers; and styrene/1,3-butadiene/acrylonitrile copolymers.

55. (new) The tyre of claim 45, wherein the elastomeric composition further comprises at least one elastomeric polymer of one or more monoolefins with an olefinic comonomer or derivatives thereof.

56. (new) The tyre of claim 54, wherein the at least one elastomeric polymer of one or more monoolefins comprises one or more of: ethylene/propylene copolymers (EPR) or

ethylene/propylene/diene copolymers (EPDM); polyisobutene; butyl rubbers; and halobutyl rubbers.

57. (new) The tyre of claim 45, wherein the at least one reinforcing filler comprises one or more of: carbon black; silica; alumina; aluminosilicates; calcium carbonate; and kaolin.

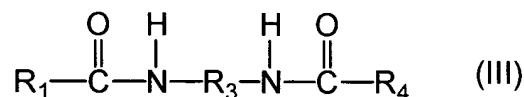
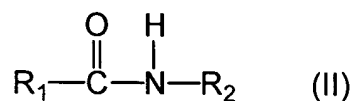
58. (new) The tyre of claim 45, wherein the at least one reinforcing filler comprises carbon black.

59. (new) The tyre of claim 45, wherein the at least one reinforcing filler comprises silica.

60. (new) The tyre of claim 45, wherein the elastomeric composition comprises from 0.1 phr to 120 phr of the at least one reinforcing filler.

61. (new) The tyre of claim 45, wherein the elastomeric composition comprises from 20 phr to 90 phr of the at least one reinforcing filler.

62. (new) The tyre of claim 45, wherein the at least one fatty acid amide is selected from compounds having the following formulae (II) or (III):



wherein R₁ and R₄, which may be identical or different from each other, are selected from linear or branched C₁-C₂₄ alkyl groups, linear or branched C₂-C₂₄ alkenyl groups, C₅-C₂₄ cycloalkyl groups;

wherein R₃ is a linear or branched C₁-C₁₀ alkylene group; and

wherein R₂ is hydrogen or is selected from linear or branched C₁-C₂₄ alkyl groups, linear or branched C₂-C₂₄ alkenyl groups, or C₅-C₂₄ cycloalkyl groups.

63. (new) The tyre of claim 62, wherein the at least one fatty acid amide comprises one or more of: acetamide, propionamide, n-butyramide, n-valeramide, n-caproamide, stearamide, lauroylamide, miristic amide, arachidamide, behenamide, ethylene-bis-stearamide, and ethylene-bis-oleamide.

64. (new) The tyre of claim 62, wherein the at least one fatty acid amide comprises stearamide.

65. (new) The tyre of claim 45, wherein the carboxylic acid of formula R-COOH comprises one or more of: C₈-C₁₀ coconout acid; stearic acid; lauric acid; oleic acid; octanoic

acid; myristic acid; palmitic acid; palmitoleic acid; linoleic acid; benzoic acid; chlorobenzoic acid; methylbenzoic acid; and naphthyl acid.

66. (new) A tyre tread band including a crosslinkable elastomeric composition, the composition comprising:

at least one diene elastomeric polymer;

at least one reinforcing filler;

from 0.05 phr to 10 phr of zinc oxide;

from 0.1 phr to 20 phr of at least one fatty acid amide; and

from 0.1 phr to 15 phr of at least one zinc salt of a carboxylic acid of formula R-COOH,

wherein R is selected from linear or branched C₁-C₂₄ alkyl groups, linear or branched C₂-C₂₄ alkenyl groups, C₅-C₂₄ cycloalkyl groups, C₆-C₂₄ aryl groups, C₇-C₂₄ alkylaryl or arylalkyl groups.

67. (new) The tyre tread band of claim 66, wherein the elastomeric composition comprises from 0.1 phr to 6.0 phr of the zinc oxide.

68. (new) The tyre tread band of claim 66, wherein the zinc oxide (c) is added to the elastomeric composition in an amount of from 0.5 phr to 5.0 phr.

69. (new) The tyre tread band of claim 66, wherein the elastomeric composition comprises from 0.5 phr to 10 phr of the at least one fatty acid amide.

70. (new) The tyre tread band of claim 66, wherein the elastomeric composition comprises from 2.0 phr to 6.0 phr of the at least one fatty acid amide.

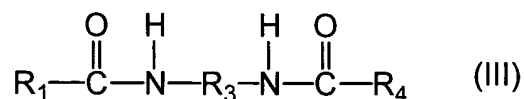
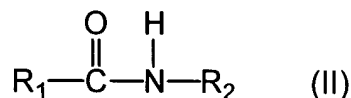
71. (new) The tyre tread band of claim 66, wherein the elastomeric composition comprises from 0.5 phr to 10 phr of the at least one zinc salt of a carboxylic acid.

72. (new) The tyre tread band of claim 66, wherein the elastomeric composition comprises from 1.0 phr to 5.0 phr of the at least one zinc salt of a carboxylic acid.

73. (new) The tyre tread band of claim 66, wherein the at least one diene elastomeric polymer comprises one or more of: cis-1,4-polyisoprene; 3,4-polyisoprene; polybutadiene; optionally halogenated isoprene/isobutene copolymers; 1,3-butadiene/acrylonitrile copolymers; styrene/1,3-butadiene copolymers; styrene/isoprene/1,3-butadiene copolymers; and styrene/1,3-butadiene/acrylonitrile copolymers.

74. (new) The tyre tread band of claim 66, wherein the at least one reinforcing filler comprises one or more of: carbon black; silica; alumina; aluminosilicates; calcium carbonate; and kaolin.

75. (new) The tyre tread band of claim 66, wherein the at least one fatty acid amide is selected from compounds having the following formulae (II) or (III):



wherein R₁ and R₄, which may be identical or different from each other, are selected from linear or branched C₁-C₂₄ alkyl groups, linear or branched C₂-C₂₄ alkenyl groups, C₅-C₂₄ cycloalkyl groups;

wherein R₃ is a linear or branched C₁-C₁₀ alkylene group; and

wherein R₂ is hydrogen or is selected from linear or branched C₁-C₂₄ alkyl groups, linear or branched C₂-C₂₄ alkenyl groups, or C₅-C₂₄ cycloalkyl groups.

76. (new) The tyre tread band of claim 66, wherein the carboxylic acid of formula R-COOH comprises one or more of: C₈-C₁₀ coconout acid; stearic acid; lauric acid; oleic acid; octanoic acid; myristic acid; palmitic acid; palmitoleic acid; linoleic acid; benzoic acid; chlorobenzoic acid; methylbenzoic acid; and naphthyl acid.

77. (new) An elastomeric composition, comprising:

at least one diene elastomeric polymer;

at least one reinforcing filler;

from 0.05 phr to 10 phr of zinc oxide;

from 0.1 phr to 20 phr of at least one fatty acid amide; and

from 0.1 phr to 15 phr of at least one zinc salt of a carboxylic acid of formula R-COOH, wherein R is selected from linear or branched C₁-C₂₄ alkyl groups, linear or branched C₂-C₂₄ alkenyl groups, C₅-C₂₄ cycloalkyl groups, C₆-C₂₄ aryl groups, C₇-C₂₄ alkylaryl or arylalkyl groups.

78. (new) The elastomeric composition of claim 77, comprising from 0.1 phr to 6.0 phr of the zinc oxide.

79. (new) The elastomeric composition of claim 77, comprising from 0.5 phr to 5.0 phr of the zinc oxide.

80. (new) The elastomeric composition of claim 77, comprising from 0.5 phr to 10 phr of the at least one fatty acid amide.

81. (new) The elastomeric composition of claim 77, comprising from 2.0 phr to 6.0 phr of the at least one fatty acid amide.

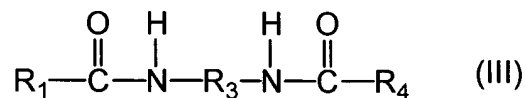
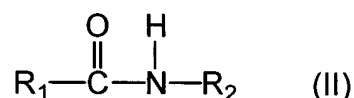
82. (new) The elastomeric composition of claim 77, comprising from 0.5 phr to 10 phr of the at least one zinc salt of a carboxylic acid.

83. (new) The elastomeric composition of claim 77, comprising from 1.0 phr to 5.0 phr of the at least one zinc salt of a carboxylic acid.

84. (new) The elastomeric composition of claim 77, wherein the at least one diene elastomeric polymer comprises one or more of: cis-1,4-polyisoprene; 3,4-polyisoprene; polybutadiene; optionally halogenated isoprene/isobutene copolymers; 1,3-butadiene/acrylonitrile copolymers; styrene/1,3-butadiene copolymers; styrene/isoprene/1,3-butadiene copolymers; and styrene/1,3-butadiene/acrylonitrile copolymers.

85. (new) The elastomeric composition of claim 77, wherein the at least one reinforcing filler comprises one or more of: carbon black; silica; alumina; aluminosilicates; calcium carbonate; and kaolin.

86. (new) The elastomeric composition of claim 77, wherein the at least one fatty acid amide is selected from compounds having the following formulae (II) or (III):



wherein R₁ and R₄, which may be identical or different from each other, are selected from linear or branched C₁-C₂₄ alkyl groups, linear or branched C₂-C₂₄ alkenyl groups, C₅-C₂₄ cycloalkyl groups;

wherein R₃ is a linear or branched C₁-C₁₀ alkylene group; and

wherein R₂ is hydrogen or is selected from linear or branched C₁-C₂₄ alkyl groups, linear or branched C₂-C₂₄ alkenyl groups, or C₅-C₂₄ cycloalkyl groups.

87. (new) The elastomeric composition of claim 77, wherein the carboxylic acid of formula R-COOH comprises one or more of: C₈-C₁₀ coconout acid; stearic acid; lauric acid; oleic acid; octanoic acid; myristic acid; palmitic acid; palmitoleic acid; linoleic acid; benzoic acid; chlorobenzoic acid; methylbenzoic acid; and naphthyl acid.

88. (new) A crosslinked elastomeric manufactured product obtained by crosslinking the elastomeric composition of claim 77.